Countries of the Americas

Latin America
- Andean Area
  - Bolivia
  - Colombia
  - Ecuador
  - Peru
  - Venezuela
- Southern Cone
  - Argentina
  - Chile
  - Paraguay
  - Uruguay
- Brazil
- Central America
  - Belize
  - Costa Rica
  - El Salvador
  - Guatemala
  - Honduras
  - Nicaragua
  - Panama
- Mexico
- Latin Caribbean
  - Cuba
  - Dominican Republic
  - Haiti
  - Puerto Rico

Caribbean
- Anguilla
- Antigua and Barbuda
- Bahamas
- Barbados
- Bermuda
- British Virgin Islands
- Cayman Islands
- Dominica
- French Guiana
- Grenada
- Guadeloupe
- Guyana
- Jamaica
- Martinique
- Montserrat
- Netherlands Antilles and Aruba
- Saint Kitts and Nevis
- Saint Lucia
- Saint Vincent and the Grenadines
- Suriname
- Trinidad and Tobago
- Turks and Caicos Islands
- Virgin Islands

North America
- Canada
- United States of America

Data in this report are almost exclusively presented by the above regions. In some instances, however, information is presented separately for the French overseas departments in the Americas (French Guiana, Guadeloupe, and Martinique) and the French territory Saint Pierre and Miquelon, which is in North America. Such instances are noted in the text.

The designations employed and the presentation of the material in this publication do not imply the expression of any opinion whatsoever on the part of the Secretariat of the Pan American Health Organization or the U.S. Department of Health and Human Services concerning the legal status of any country, territory, city, or area of its authorities, or concerning the delimitation of its frontiers or boundaries.

Notes on the Text

Trade Names

Use of trade names is for identification only and does not constitute endorsement by the Public Health Service or the U.S. Department of Health and Human Services.

Company Names

Current names are used to identify companies throughout the report. In some instances, exact names could not be verified from current sources, and the best available information was used. On tables reproduced from other sources, the nomenclature used in the original source was retained.

Sources used to verify company names included Tobacco International's *57th Annual Directory and Buyer's Guide, 1991* (Vol. 192, No. 21, New York: Lockwood Trade Journal Co., Inc., 1990) and the following online databases: D&B—Dun's Market Identifiers, ICC British Company Directory, and ICC British Company Financial Datasheets.

The complete name is used for the first mention of a company, after which an abbreviated form is generally used.

Organizations, Campaigns, and Slogans

Names of organizations, coalitions, committees, government agencies, and other groups, as well as names of public information campaigns and health campaigns and their slogans were verified in online sources (Encyclopedia of Associations, MEDLINE, and several news services) and in the files of the Pan American Health Organization (PAHO). Not all such information was verifiable, and translations made into English sometimes varied. Every reasonable effort was made to obtain the official name and/or standard translation; we regret any inaccuracies that may have occurred.

Legislation and Health Warnings

The legal and the popular names of legislation and the wording of health warnings required on advertisements and packaging of tobacco products were verified in several sources. These included the United States Code Service (online database), PAHO's LEYES database (see Chapter 5, Appendix 2), the *International Digest of Health Legislation*, copies of legislation, and the files of the Centers for Disease Control's Office on Smoking and Health. We regret any errors that may have resulted from incomplete files or inaccurate translations.

Botanic Substances

Names of substances discussed in Chapter 2 are treated as non-English words unless they appear in *Webster's Third New International Dictionary of the English Language*, unabridged, Springfield, Massachusetts: G. & C. Merriam Company, 1981. The spelling of non-English words was verified in foreign language dictionaries or used as cited in original sources.

Chapter 1
Introduction, Summary, and Chapter Conclusions

Introduction

Recognition that the problems posed by personal risks are amenable to social solutions is an important contribution of modern public health. Each person makes choices, but such choices are shaped by social, economic, and environmental circumstances. On an even broader scale, national choices are made in a complex regional or global setting. This report attempts to place the personal risk of smoking in the Americas in the larger context and to underline both the heterogeneity and the interrelationship of nations.

Previous Surgeon General's reports have focused primarily, although not exclusively, on the epidemiologic, clinical, biologic, and pharmacologic aspects of smoking. With the twenty-fifth anniversary report (U.S. Department of Health and Human Services 1989), in which considerable attention was devoted to the social, economic, and legislative aspects of tobacco consumption, the need to place tobacco in a larger context was made apparent. Accordingly, this report now examines the broad issues that surround the production and consumption of tobacco in the Americas.

Development of the Report

The 1992 Surgeon General's report was prepared by the Office on Smoking and Health (OSH), National Center for Chronic Disease Prevention and Health Promotion, Centers for Disease Control, Public Health Service, U.S. Department of Health and Human Services, as part of the department's responsibility, under Public Law 91-222, to report current information on smoking and health to the U.S. Congress.

OSH, a World Health Organization Collaborating Center for Smoking and Health, works closely with the Pan American Health Organization (PAHO). In the Regional Plan of Action for the Prevention and Control of Tobacco Use, PAHO responded to the thirty-third meeting (1988) of its Directing Council, which recommended that PAHO (1) collaborate with the countries of the Americas in the development of national programs for the prevention and control of smoking and (2) cooperate with member states and government and nongovernment centers and groups in identifying and mobilizing resources to contribute to this plan of action (PAHO 1989).

In February 1988, the Surgeon General, then C. Everett Koop, M.D., Sc.D., and the PAHO Director, Carlyle Guerra de Macedo, M.D., M.P.H., agreed to the development of a Surgeon General's report that focuses on smoking in the Americas. OSH and the Health of Adults Program of PAHO began work on this project.

OSH and PAHO presented the concept of a collaborative effort to attendees of the Fourth PAHO Subregional Workshop on the Control of Tobacco (Central America) in November 1988. Meetings of the Latin American Coordinating Committee on Smoking Control were also attended by OSH and PAHO staff in Santa Cruz, Bolivia (January 1989), and in Port of Spain, Trinidad and Tobago (March 1989).

Four experts on tobacco and health (from Brazil, Canada, Colombia, and Costa Rica) served on the Senior Editorial Board, and a collaborator was identified in each of the participating member states. In September 1989, work began on the current report and on a country-by-country summary of the current status of tobacco prevention and control in the Americas, which PAHO is issuing as a companion document to this report (PAHO 1992).

The current report has been prepared from reviews written by experts in the historical, sociodemographic, epidemiologic, economic, legal, and public health aspects of smoking in the Americas. In addition to standard bibliographic sources, the report uses data supplied by the U.S. Department of Agriculture, the Centers for Disease Control, The World Bank, the World Health Organization, the Economic Commission for Latin America and the Caribbean, the Caribbean Community Secretariat, the Latin American Center on Demography, the International Union Against Cancer, the International Organization of Consumers Unions, the American Cancer Society, and the Latin American Coordinating Committee on Smoking Control.

In addition, this report uses information derived from a data collection instrument developed by PAHO (with technical assistance from OSH) for the companion report on the current status of tobacco prevention and control in PAHO's member states. The data collection instrument requested current information on tobacco cultivation, cigarette consumption, legislation, taxation, government and nongovernment programs to control tobacco, tobacco-use surveys, and tobacco-related disease impact. Detailed information from this data collection instrument was reviewed at meetings in Caracas, Venezuela (February 1990), and Port of Spain, Trinidad and Tobago (March 1990), before incorporation into PAHO's country-by-country status report.

Major Conclusions

Five major conclusions have emerged from review of the complex factors affecting smoking in the Americas. The first two relate to the current size of the problem; the latter three, to current conditions that have an important influence on the prevention and control of tobacco use.

1. The prevalence of smoking in Latin America and the Caribbean is variable but reaches 50 percent or more among young people in some urban areas. Significant numbers of women have taken up smoking in recent years.
2. By 1985, an estimated minimum of 526,000 smoking-attributable deaths were occurring yearly in the Americas; 100,000 of these deaths occurred in Latin America and the Caribbean.
3. In Latin America and the Caribbean, the current structure of the tobacco industry, which is dominated by transnational corporations, presents a formidable obstacle to smoking-control efforts.
4. The economic arguments for support of tobacco production are offset by the long-term economic effects of smoking-related disease.
5. Commitment to surveillance of tobacco-related factors—such as prevalence of smoking; morbidity and mortality; knowledge, attitudes, and practices; tobacco consumption and production; and taxation and legislation—is crucial to the development of a systematic program for prevention and control of tobacco use.

Summary

The use of tobacco in the Americas long predates the European voyages of discovery. Among indigenous populations, tobacco was used primarily for the pharmacologic effects of high doses of nicotine, and it played an important role in shamanistic and other spiritual practices. Its growth as a cash crop began only after the European market was opened to tobacco in the early and mid-seventeenth century. During early colonial times, the focus for tobacco cultivation shifted from Latin America and the Caribbean to North America, where a light, mellow brand of tobacco was grown. Despite antitobacco movements, the popularity of tobacco increased dramatically after the U.S. Civil War, and by the early part of the twentieth century, the cigarette had emerged as the tobacco product of choice in the United States.

The first half of the twentieth century witnessed a spectacular increase in the popularity of cigarettes and in the growth of several major cigarette manufacturing companies in the United States. Interest in international expansion was minimal until after World War II. In the early 1950s, preliminary reports of the health effects of tobacco first appeared; these were followed in 1964 by the first report of the Surgeon General on the health effects of smoking (Public Health Service 1964). These events, which were accompanied by a downturn in U.S. tobacco consumption, ushered in a period of rapid international expansion by the tobacco companies. Their expansion into Latin America and the Caribbean was typified by a process of denationalization—that is, the abandonment of local government tobacco monopolies and the creation of subsidiaries by U.S. and British transnational tobacco corporations. The transnational companies were particularly successful in altering local demand by influencing consumer preferences. Local taste for dark tobacco in a variety of forms was largely replaced by demand for the long, filtered, light-tobacco cigarettes produced by the transnational companies.

During the 1980s, several divergent forces influenced the consumption of tobacco in Latin America and the Caribbean. Changing demographics (primarily declining birth and death rates and an overall growth in the population), increasing urbanization, improving education, and the growing entry of women into the labor force—all expanded the potential market for tobacco. Although systematic surveillance evidence is lacking, an increased prevalence of smoking among young people, particularly women in urban areas, appears to have occurred during this period. A countervailing force, however, was the major economic downturn experienced by most countries of Latin America and the Caribbean during the 1980s. The result was that despite the increasing prevalence of smoking in some sectors of the population, overall consumption of tobacco declined. Unlike the decline in North America, however, the decline in Latin America and the Caribbean seems to have been

based on income elasticity rather than on health concerns.

The health burden imposed by smoking in Latin America and the Caribbean is currently smaller than that in North America. A conservative estimate is that, by the mid-1980s, at least 526,000 deaths from smoking-related diseases were occurring annually in the Americas and that approximately 100,000 of these deaths occurred in Latin America and the Caribbean. Since the smoking epidemic is more recent, less widespread, and less entrenched in Latin America and the Caribbean than in North America, it may be thought of as less "mature"—that is, sufficient time has not yet elapsed for the cumulative effects of tobacco use to become manifest. Because health data from Latin American and Caribbean countries vary in consistency and comprehensiveness, establishing overall trends for morbidity and mortality is difficult. Nonetheless, the available evidence suggests an important contrast between North America on the one hand, and Latin America and the Caribbean on the other. In the United States and Canada, smoking-associated mortality is high and increasing because of high consumption levels in the past, but prevalence of smoking is declining. In Latin America and the Caribbean, prevalence of smoking is high in some sectors, but smoking-attributable mortality is still low compared with that for North America. This contrast augurs poorly for public health in Latin America and the Caribbean, unless action is taken.

The health costs of smoking are considerable. The U.S. population of civilian, noninstitutionalized persons aged 25 years or older who ever smoked cigarettes will incur lifetime excess medical care costs of $501 billion. The estimated average lifetime medical costs for a smoker exceed those for a nonsmoker by over $6,000. This excess is a weighted average of the costs incurred by all smokers, whether or not they develop smoking-related illness. For smokers who do develop such illnesses, the personal financial impact is much higher.

Available data do not permit a firm estimate for Latin America and the Caribbean. The estimate will probably vary with the health care structure of the country, but the burden is likely to increase with increasing development and industrialization. Nonetheless, early evidence suggests that smoking-prevention programs can be cost-effective under current economic circumstances.

The economics of the tobacco industry in the Americas are complex. Although tobacco had long been thought to be an inelastic commodity, it has been demonstrated to be both price and income elastic. Such elasticity renders tobacco use susceptible to control through taxation and other disincentives. Revenues from tobacco have been an important, though variable, source of funds for governments, but the case for promoting tobacco production on economic grounds is weak. Currently, only a few countries of Latin America and the Caribbean have economies that are largely dependent on tobacco production. The current economic picture, coupled with consumer responsiveness to income and price and the potential health hazards, has created a significant opportunity for tobacco control in Latin America and the Caribbean.

This opportunity is reflected, to some extent, in the fact that most countries of the Americas have legislation that controls tobacco use. Restrictions on advertising, the requirement of health warnings on tobacco products, limits on access to tobacco, and restrictions on public smoking have all been invoked. The legislative approach is not systematic, however, and in many countries, the programs have gaps. Furthermore, the extent to which such legislation is enforced is not fully known. Nonetheless, the pace of enactment suggests a growing awareness of the potential efficacy of the legislative approach.

Overall, the public health approach to tobacco control in Latin America and the Caribbean is variable. Many countries have adopted some elements of comprehensive control, including (in addition to legislation and taxation) the development of national coalitions, the promotion of education and media-based activities, and the development and refinement of surveillance systems. Few countries, however, have adopted the unified approach that characterizes, for example, the program in Canada.

The potential exists in the Americas for a strong, coordinated effort in smoking control at the local, national, and regional levels. The high prevalence of smoking that is emerging in many areas is a clear indicator of an approaching epidemic of smoking-related disease. The potential for decreasing consumption in Latin America and the Caribbean has been well demonstrated, albeit by the unfortunate mechanism of an economic downturn. The potential for a decline in smoking prevalence motivated by health concerns has been well demonstrated in North America. Furthermore, the importance of tobacco manufacturing and production to local economies is undergoing considerable scrutiny. Regional and international plans for tobacco control have been developed and are being implemented. For persons in the Americas in the coming years, the individual decision to smoke may well be made in an environment that is increasingly cognizant of the costs and hazards of smoking.

Chapter Conclusions

Following are the specific conclusions from each chapter in this report:

Chapter 2. The Historical Context

1. Tobacco has long played a role, chiefly as a feature of shamanistic practices, in the cultural and spiritual life of the indigenous populations of the Americas. This usage by a small group of initiates contrasts sharply with the widespread tobacco addiction of contemporary American societies.
2. During the latter half of the nineteenth century, amalgamation of major U.S. cigarette firms coincided with the emergence of the cigarette as the most popular tobacco product in the United States.
3. In Latin America and the Caribbean, through a process of denationalization and the formation of subsidiaries, a few transnational corporations now dominate the tobacco industry. The current structure of the industry presents a formidable obstacle to smoking-control efforts.
4. After rapid growth in per capita tobacco consumption in Latin America and the Caribbean during the 1960s and 1970s, a severe economic downturn during the 1980s led to a decline in tobacco consumption. In the absence of countermeasures, an economic recovery is likely to instigate a resurgence of tobacco consumption.

Chapter 3. Prevalence and Mortality

1. Certain sociodemographic phenomena—such as change in population structure, increasing urbanization, increased availability of education, and entry of women into the labor force—have increased the susceptibility of the population of Latin America and the Caribbean to smoking.
2. The lack of systematic surveillance information about the prevalence of smoking in most areas of Latin America and the Caribbean hinders comprehensive control efforts. Available information reflects a variety of survey methods, analytic schemes, and reporting formats.
3. Available data indicate that the median prevalence of smoking in Latin America and the Caribbean is 37 percent for men and 20 percent for women. Variation among countries is considerable, however, and smoking prevalence is 50 percent or more in some populations but less than 10 percent in others. In general, prevalence is highest in the urban areas of the more-developed countries and is higher among men than among women.
4. The initiation of smoking (as measured by the prevalence of smoking among persons 20 to 24 years of age) exceeds 30 percent in selected urban areas. Although systematic time series are not available, the data suggest that more recent cohorts (especially of women) in the urban areas of more-developed countries are adopting tobacco use at a higher rate than did their predecessors.
5. The smoking epidemic in Latin America and the Caribbean is not yet of long duration or high intensity, and the mortality burden imposed by smoking is smaller than that for North America. By 1985, an estimated minimum of 526,000 smoking-attributable deaths were occurring each year in all the countries of the Americas; 100,000 of these deaths occurred in Latin American and Caribbean countries.
6. The estimate of 526,000 deaths annually is conservative and is best viewed as the first point on a continuum of such estimates. However, it provides an order of magnitude for the number of smoking-attributable deaths in the Americas.
7. The time lag between the onset of smoking and the onset of smoking-attributable disease is foreboding. In North America, a high prevalence of smoking, now declining, has been followed by an increasing burden of smoking-attributable morbidity and mortality. In Latin America and the Caribbean, rising prevalence portends a major burden of smoking-attributable disease.

Chapter 4. Economics of Tobacco Consumption in the Americas

1. Because the health costs of tobacco consumption result from cumulative exposure, they are most pronounced in the economically developed countries of North America, which have had major long-term exposure. Since many countries of Latin America and the Caribbean are experiencing an epidemiologic transition, the economic impact of smoking is increasing.

2. The economic costs of smoking are a function of the economic, social, and demographic context of a given country. In the United States, estimated total lifetime excess medical care costs for smokers exceed those for nonsmokers by $501 billion—an average of over $6,000 per current or former smoker. Similar formal estimates for many Latin American and Caribbean countries are not available.
3. Evidence of the cost-effectiveness of smoking control and prevention programs has increased. In Brazil, for example, the cost of public information and personal smoking-cessation services is estimated at 0.2 to 2.0 percent of per capita gross national product (GNP) for each year of life gained; treatment for lung cancer costs 200 percent of per capita GNP per year of life gained.
4. In Latin America and the Caribbean, as GNP increases, cigarette consumption increases, particularly at lower income levels. This effect is attenuated at higher income levels.
5. Advertising tends to increase cigarette consumption, although the relationship is difficult to quantify precisely. Advertising restrictions are generally associated with declines in consumption and, hence, are an important component of tobacco-control programs.
6. The case for promoting increased tobacco production on economic grounds should be reconsidered. Although tobacco is typically a very profitable crop, much of the advantage of producing tobacco stems from the various subsidies, tariffs, and supply restrictions that support the high price of tobacco and provide economic rents for tobacco producers. Although the tobacco industry is a significant source of employment, production of alternative goods would generate similar levels of employment.
7. Increases in the price of cigarettes, which are a price-elastic commodity, cause decreases in smoking, particularly among adolescents. Excise taxes may thus be viewed as a public health measure to diminish morbidity and mortality, although the precise impact of taxes on smoking will be influenced by local economic factors.

Chapter 5. Legislation to Control the Use of Tobacco in the Americas

1. Legislation that affects the supply of and demand for tobacco is an effective mechanism for promoting public health goals for the control of tobacco use.
2. Although the direct effects of legislation are often difficult to specify because of interaction with a variety of other factors, there are numerous examples of an immediate change in tobacco consumption subsequent to the enactment of new laws and regulations.
3. Most countries of the Americas have legislation that restricts cigarette advertising and promotion, requires health warnings on cigarette packages, restricts smoking in public places, and attempts to control smoking by young people. These laws and regulations, however, vary in their specific features. In many areas, the current level of enforcement is unknown.

Chapter 6. Status of Tobacco Prevention and Control Programs in the Americas

1. A basic governmental and nongovernmental infrastructure for the prevention and control of tobacco use is present in most countries of the Americas, although programs vary considerably in their degree of development.
2. The need is now recognized, and work is under way, for developing a comprehensive, systematic approach to the surveillance of tobacco-related factors in the Americas, including the prevalence of smoking; smoking-associated morbidity and mortality; knowledge, attitudes, and practices with regard to tobacco use; tobacco production and consumption; and taxation and legislation.
3. School-based educational programs about tobacco use are not yet a major feature of control activities in Latin America and the Caribbean. The few evaluation studies reported indicate that such programs can be effective in preventing the initiation of tobacco use.
4. Cessation services in most countries of the Americas are often available through church and community organizations. Private and government-sponsored cessation programs are uncommon.
5. Media and public information activities for tobacco control are conducted in most countries of the Americas, but the extent of these activities and their effect on behavior are unknown.

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Chapter 2
The Historical Context

Preface

Since prehistoric times, tobacco has been part of the life and culture of the people of the Americas and has been a prominent feature of the religious and healing practices of the region's indigenous societies. During the eras of discovery, exploration, and national independence, tobacco was a major commodity in the growth of trade and the development of an economic base. In more recent times, tobacco use has become intimately entwined with social mores, economic patterns, and, perhaps most importantly, the health of populations in the Americas—as it has in the world at large. The recognition of health effects is a recent phenomenon in the history of tobacco use. Two main reasons for this recognition have been proposed. First, only in this century has life expectancy increased to the point at which smoking-related diseases begin to have a significant impact. Second, only in this century has an efficient method of tobacco ingestion—the manufactured cigarette—become available.

This chapter considers the historical development of tobacco use in the Americas—from the prehistoric cultivation of tobacco to the emergence of the manufactured cigarette and the growth of transnational tobacco corporations. Such an overview provides a background for understanding the current role of tobacco in the Americas.

Tobacco Use in Indigenous Societies

Introduction

In modern times, tobacco is ingested primarily by burning the tobacco leaf and inhaling the smoke. Tobacco is also chewed or placed, in the form of snuff, in contact with the mucous membranes of the mouth. The predominance of these methods is a fairly recent phenomenon, and the most common delivery system—the manufactured cigarette—has been available for only a little over a century. In the Americas, however, tobacco has been used for millennia, through various routes of administration and for a broad range of social and cultural purposes. The following discussion reviews but does not attempt to trace the history of tobacco use in the region's indigenous societies. Some of the practices discussed are rare or extinct; others are in current use, but all contribute to defining the role of tobacco in the cultural and religious life of these societies.

Nicotiana is an ancient genus, of which two major species in South America—*N. rustica* and *N. tabacum*—produce high yields of the principal alkaloid, nicotine. Many species were present in the Southern Cone of South America in ancient times, but they were largely ignored until about 8,000 years ago, when the changing food supply forced a major shift from hunting and gathering to land cultivation. At that time, populations migrated from the open savannas of southern South America, which were largely unsuited for agriculture, to the tropical rain forest of the Amazon and areas further north, including the Caribbean. Tobacco became one of the standard crops cultivated by these early farmers.

Old World Discovery of Leaf Tobacco

European explorers were introduced to tobacco in the West Indies in 1492, when natives offered tobacco leaves to Christopher Columbus and his men as a token of friendship. After a subsequent exploratory excursion through coastal Cuba, two of Columbus's crew reported having witnessed the custom of cigar smoking (Brooks 1937–1952). The explorers who followed also recorded tobacco use among the Indians, and these accounts, along with the observations of missionaries, soldiers, travelers, and scholars, are integral to our understanding of the role of tobacco in indigenous cultures.

Many explorers learned that tobacco use was addictive and multipurpose, but most of them did not understand why Indians considered tobacco sacred. The plant, it was soon recognized, was used in two main ways. In small doses, it acted as a stimulant, as a hunger and thirst suppressant, and as an analgesic. In such quantities, tobacco was used for social purposes, such as sealing friendships; augmenting palavers, war councils, and dances; and strengthening warriors. Small amounts of tobacco were also used during ceremonies to ensure fertility; to forecast propitious weather; to predict successful fishing, lumbering, and planting; and to ensure congenial courtship. In large doses, tobacco altered states of consciousness and was reported to facilitate spiritual objectives, such as spirit consultations, trance states, and psychic curing. In these excessive quantities, the substance acquired its sacred status.

The earliest printed reference to tobacco and the first mention of tobacco smoking is found in the first volume of Gonzalo Fernández de Oviedo y Valdés's ([1535] 1851–1855) monumental account of the discovery of the Americas and the first decades of conquest. He commented on the practice of divinatory tobacco smoking by shamans and the methods of tobacco cultivation among the Caquetío Indians of northern Venezuela. He also reported in 1549 that the Nicoya Indians of Nicaragua used ceremonial cigars and that Spanish soldiers had been offered reed cigarettes by Maya Indians off the coast of Yucatán (Robicsek 1978).

During his travels in 1541 to 1555, Girolamo Benzoni reported that the shamans of Hispaniola and certain Central American provinces poisoned themselves with tobacco smoke during a curing seance. In the process, some men fell to the ground as if dead and remained "stupefied for the greater part of the day or night" (Benzoni [1565] 1967, p. 97). After becoming coherent, these shamans would tell of their visions and encounters with the gods.

Other explorers witnessed cigar smoking on the coast of Brazil. In 1555, the Franciscan friar André Thevet ([1557] 1928) made contact with the Tupinamba Indians in Brazil. He reported their use of cigars to suppress hunger and thirst and during council deliberations.

Thevet's report and similar information by Hans Staden ([1557] 1928) were confirmed by Jean de Léry (1592) who reported smoking and another mode of tobacco use—ritual tobacco blowing—among the Tupinamba. Using long canes, chiefs blew tobacco smoke on the heads and faces of participants

circumambulating during war dances—purportedly to impart the spirit and fortitude required to overcome enemies. Canes may also have been used by the Tupinamba as tubular pipes. A few years earlier, Jacques Cartier (1545) had found L-shaped pipes in use among the Iroquois of Hochelaga (Montreal).

Another method of tobacco consumption was reported among the Taino Indians of the Greater Antilles. This tribe reportedly used a forked tube to inhale tobacco smoke (Fernández de Oviedo y Valdés [1535] 1851–1855). The Catalonian friar Ramón Pané ([1511] 1974) referred to a similar tube used by the Indians; however, it was used to inhale psychotropic snuff (cohoba) (D'Anghiera 1912). The tube may have been used by the Taino for both purposes.

Amerigo Vespucci reported the custom of leaf chewing among Indians (de Navarrete 1880). Vespucci might have observed tobacco chewing with lime, but he did not identify the type of plant material. The custom of chewing whole coca (*Erythroxylon*) leaves with powdered lime was widespread along the Caribbean coast of South America at the arrival of the Europeans, and it persists today (Plowman 1979). At the time of European discovery, chewing tobacco powder with ashes or pulverized shell was also common among the Carib Indians of the Lesser Antilles and the northeastern mainland of South America.

Methods of Tobacco Ingestion

The discussion of traditional tobacco use that follows is based on sources that span several hundred years. Some methods are still practiced and some are not. To avoid the confusion of shifting between past and present, the present tense is used (the ethnographic present) to allow a cross-sectional view of tobacco use by indigenous societies. Although this approach conveys a sense of immutability, some methods of tobacco use have undergone considerable change. Some mention is made of tobacco use among North American indigenous societies, but the discussion focuses on South American practices. The information presented is based on Wilbert (1987),[1] except where other references are cited.

Gastrointestinal, respiratory, and percutaneous routes of ingestion have been documented among South American Indians. Intravenous administration has not been reported. The reported methods of ingestion comprise chewing tobacco quids, drinking tobacco juice and syrup, licking tobacco paste, administering tobacco suppositories and enemas, using snuff, smoking, inhaling airborne tobacco smoke, and applying tobacco products to the skin and the eyes.

Tobacco Chewing

The chewing or, more precisely, sucking of tobacco quids is widely practiced in South America and the West Indies. The widespread distribution of tobacco chewing is considered indicative of the antiquity of this method (Zerries 1964). The practice has been observed in the Lesser Antilles and eastern Venezuela and from northwestern Colombia and the upper Amazon to the Montaña-to-Gran Chaco region (an area encompassing parts of Bolivia, Paraguay, and Argentina) as well as in eastern Brazil. In North America, tobacco chewing was practiced by Indians of the Pacific Northwest. With periodic fluctuations, tobacco chewing has found wide acceptance in non-Indian societies as well (U.S. Department of Health and Human Services [USDHHS] 1986; National Cancer Institute 1989; Connolly et al. 1986).

Indians in South America prepare wads or rolls for chewing from green tobacco and sometimes dust the wet leaves with ashes or salt and mix them with certain kinds of soils or honey. They also use tobacco pellets prepared by kneading finely chopped green tobacco leaves mixed with nitrous earth into a dough or by mixing finely crushed tobacco leaves with ashes and wetting the powder with water to produce a smooth paste. Guianese Indians bake a cake of fresh tobacco leaves that is sprinkled with salt or a surrogate obtained from *oulin (Mourera fluviatilis)*. Strips of the cake are stored in gourds, and *caraña* (resin; *Protium heptaphyllum*), pepper (*Capsicum* sp.), medicinal herbs, or lime from sea shells may be used as additives.

Tobacco quids, rolls, or pellets are carried by the user in the cheek or between the gum and the lower lip for protracted periods (Hammilton 1957). Tobacco chewing frequently occurs in conjunction with other methods of administration, such as smoking and snuffing, and tobacco is sometimes chewed with coca. Indians generally swallow the trickling juices rather than expectorate them (Bray and Dollery 1983).

Tobacco Drinking

Along with chewing, ingesting tobacco in liquid form may be the oldest method of tobacco use (Sauer 1969). The ethnographic distribution of tobacco

[1] For a broader discussion of the general topic and for more extensive documentation, consult Wilbert, J., Tobacco and Shamanism in South America, In: Schultes, R.E., Raffauf, R.F. (eds.) *Psychoactive Plants of the World*. New Haven, Connecticut: Yale University Press, 1987. See also the papers in the *Journal of Ethnopharmacology* (Elsevier Scientific Publishers) (Wilbert 1990) and in the proceedings published by Birkhäuser Verlag (Wilbert 1991).

drinking is similar to that of tobacco chewing, although it is not reported in the Gran Chaco. Most of the tribes in greater Guiana and many societies of the upper Amazon and the Montaña of Ecuador and Peru drink tobacco juice. Tobacco drinking has also been reported in northwestern coastal Venezuela, northwestern Colombia, and a few scattered places in Bolivia and Brazil. Tobacco drinking has found little acceptance as a method of tobacco use outside South America.

The Indians in these regions prepare tobacco juice in various ways. In greater Guiana, tobacco juice is usually an infusion of whole or pounded green leaves in water. The steeped or boiled leaves are strained and pressed by hand. Some tribes add salt or oulin ashes to the mixture (see "Tobacco Chewing"). Other botanical materials used as ingredients by Guianese tribes include the tree barks *ayug* and cinchona. Upper Amazon and Montaña tribes similarly steep, press out, and stir tobacco leaves in water, although these tribes frequently mince or masticate the leaves and occasionally add pepper (*Capsicum* sp.). Boiling tobacco leaves in water for the preparation of juice more frequently occurs among the tribes of the upper Amazon and the Montaña than among Guianese tribes. Unlike *ambil* paste, a syrup extract or jelly from which the water is completely evaporated, the juice is left viscous enough to allow for drinking.

Tobacco juice is ingested by mouth or through the nose, using cupped hands or gourds. The concentrate may also be squirted directly from mouth to mouth. Tobacco drinking is often accompanied by the consumption of tobacco in other forms, alcoholic beverages, and certain hallucinogenic substances.

Tobacco Licking

Licking of ambil is limited to the tribes of the northernmost extension of the Andes in Colombia and Venezuela, parts of the northwest Amazon, and a few areas of the Montaña.

Ambil is prepared differently from region to region. Indians in the Sierra Nevada de Santa Marta of Colombia boil tobacco leaves for hours or days and thicken the black gelatin extract with manioc starch (*Manihot esculenta*) or arrowroot (*Maranta arundinacea*). Venezuelan tribes east of Lake Maracaibo mix *urao*, a sesquicarbonate of soda, into ambil (Kamen-Kaye 1971), whereas the Montaña tribes make ambil with salt or alkaline ashes. Pepper (*Capsicum* sp.), avocado seeds (*Persea americana*), crude sugar, tapioca (manioc juice), and manioc starch are also occasionally used as ingredients for ambil.

A small quantity of ambil is rubbed across the teeth, the gums, or the tongue. Ambil is sometimes ingested with other tobacco products, and some tribes of the Montaña consume ambil with coca, ayahuasco (*Banisteria caapi*), and possibly other hallucinogens.

Tobacco Enema

Use of tobacco enemas and suppositories, as a remedy for constipation and helminthic infestations, is reported among South American Indians. The Shipibo of Peru apply a mixture of tobacco juice and ginger as a vermifuge (Gebhart, unpublished). Ritual use of tobacco enemas among the Aguaruna Indians of the Peruvian Montaña has recently been reported (Davidson, unpublished). To promote intoxication, South American Indians apply enemas of ayahuasco, *paricá* (*Virola* sp.), *willka* (*Anadenanthera colubrina*), and tobacco (*Nicotiana* sp.) (Roth 1924; Von Nordenskiöld 1930). Use of medicinal or ritual tobacco enemas has not been reported among Caribbean, Central American, or North American Indian populations.

Tobacco Snuffing

The use of tobacco snuff, although secondary to the use of psychotropic snuff in South America, is documented in several regions. Ethnographic sources indicate that tobacco snuffing is customary in the middle and upper Orinoco River, the northwest Amazon, and the Montaña—the Purus, the Guaporé, and the Andean regions. The practice has also found wide acceptance in the non-Indian world, although interest has fluctuated.

To prepare tobacco snuff, Indians dry tobacco leaves and then crush, pulverize, and often sift them. Snuff may be inhaled directly from the hand or a leaf or, more commonly, through a snuffing tube made of cane or hollow bone. Snuffing powders are sometimes administered by a partner.

Tobacco Smoking

Smoking is the most prevalent form of tobacco consumption in native South America and is particularly common in greater Guiana, the upper Amazon, the Montaña, Las Yungas, Mato Grosso, and the Gran Chaco. Smoking has also been reported in many intervening and peripheral areas, such as central and northern Colombia, the middle and lower Amazon, the coast of Brazil, Patagonia, and southern Chile.

North American Indians, except for the Pueblo and certain tribes in California, were exclusively pipe smokers (Linton 1924; Robicsek 1978). In South America, pipe smoking has prehistoric origins and is still widely distributed throughout the continent. It is prevalent in two focal areas—the Marañon-Huallaga-Ucayali region and the Gran Chaco. The practice is scattered

along the north coast and the Guiana hinterlands, along the Amazon, and in coastal Brazil. Pipe smoking also occurs farther inland and north of the Gran Chaco focal area—in central and southern Bolivia and on the lower Araguaia. South of the Chaco, pipe smoking is found in middle and southern Chile and in Patagonia.

South American Indians smoke tobacco in the form of cigars, cigarillos, and cigarettes, and they use tubular or L-shaped pipes made of reed, bamboo, wood, fruit shells, bone, clay, or stone. They inhale deeply and hyperventilate; rarely do they retain a puff of smoke in the mouth before expelling or swallowing it. The process is described as taking the smoke into the lungs with "great sucking gasps" and "working the shoulders like bellows" (Huxley 1957, p. 195). The Warao Indians of the Orinoco and several other tribal societies, such as the Vaupés Indians, hyperventilate by smoking giant cigars that measure nearly one-meter long and two-centimeters wide (Wallace [1889] 1972).

Certain customs may be associated with smoking. For example, cigars are usually rolled by Indian men, but in some Indian communities, women are expected to roll the cigars. Women may then light the cigars and take a few puffs themselves before handing the cigars to the men. Smoking is often accompanied by the ingestion of hallucinogens and stimulant beverages, such as guarana (*Paullinia cupana* var. *sorbilis*) and cassiri.

Tobacco is prepared for smoking by sun- or air-drying the leaves and crushing them; some societies alter the product with additives. To give cigar or pipe tobacco a pungent odor similar to frankincense, Indians of Guiana and Amazonia add the resin of *Protium heptaphyllum*, a tree of the myrrh or Burseraceae family. Caraña powder or granules are mixed with tobacco to give it a balsamic savor (Schultes 1980). In Patagonia, *calafate* shavings (*Berberis* sp.) are mixed into the tobacco to add an acrid taste and to create a very blue smoke when the tobacco burns. To make cigars, cigarillos, and cigarettes, South American Indians use several types of wrappers. Although whole tobacco leaves or pieces may be used, various kinds of tree foliage, palm stipples, banana leaves, and maize husks are more common. The wrappers usually add flavor and odor to the tobacco, and in some instances, observers have noted that the cover leaves may enhance the narcotic effect (Weyer 1959).

Inhaling Airborne Smoke

The intentional inhalation of environmental tobacco smoke is a peculiarly South American method of respiratory absorption of nicotine. This practice occurs on the east coast of Brazil, where religious practitioners blow tobacco smoke from canes and funnel-shaped cigars onto the heads and into the faces of dancing warriors. Men of this region also inhale the smoke of tobacco leaves burning inside effigy rattles. Cuna elders of Panama have cigar smoke blown into their faces, and Jivaro men of Peru blow tobacco smoke through long tubes into the open mouth of a partner.

Percutaneous Tobacco Use

The administration of tobacco products to intact or abraded skin is widespread in native South America and includes the following practices: general and directed smoke blowing; spit blowing of tobacco juice, nicotine-laden saliva, or tobacco powder; and administration of saliva massages, juice ablutions, and snuff and leaf plasters or compresses. Some of these practices may serve therapeutic purposes. Tobacco smoke and juice may also be applied to the eyes for absorption of nicotine by the conjunctiva.

Transcendental Purpose of Native Tobacco Use

Tobacco is traditionally used as a vehicle for transcendental experience by South American indigenous societies. As such, it is central to the religious rites of these populations and is a primary tool of the shamans, or spiritual leaders of these societies. Tobacco features in the initiation rituals of the shamans and is used throughout their careers as a mechanism for exercising power and maintaining credibility.

A fundamental role of the shamans is to serve as spiritual protectors who defend their societies against a host of intangible adversaries. Thus, a society's perception of the shaman as being supernatural as well as human is integral to the shaman's position. This dual nature is conferred during initiation rituals in which the novice undergoes a tobacco-induced deathlike state associated with temporary respiratory depression (Dole 1964). Revival from this condition is equated with a rebirth that imparts otherworldly powers.

During initiation, the novice ingests increasing amounts of tobacco and achieves acute intoxication. The candidate manifests a state of illness through nicotine-mediated nausea, heavy breathing, vomiting, and prostration. Through tremors, convulsions, or seizures, the novice progresses to acute narcosis and apparent death. The physiologic stages through which the novice passes depend on the rate of biotransformation of nicotine in the body (Larson 1952; Larson, Haag, Silvette 1961). The induction master's ability to interpret physical signs is critical.

In Guiana, for example, shamans make initiates drink liters of tobacco juice, which bring them to the brink of death. Several cupfuls of tobacco pulp are ingested in rapid succession, and a large bowl of liquid tobacco is force-fed through a funnel into the mouth of a swooning candidate. Initiates who fail to vomit part of the brew may convulse, become ill over an extended period, or die.

Shamans must continually demonstrate their spiritual power to themselves and to the community to maintain effectiveness as religious practitioners and healers (Reichel-Dolmatoff 1975). The pharmacologic effects of nicotine help them accomplish that goal. South American shamans reportedly ingest giant cigars while simultaneously chewing tobacco during ceremonies. Participants in certain rituals and shamanic curing seances on the Guaporé River (Brazil) have been observed taking dozens of insufflations of tobacco powder and ingesting up to 60 doses of *rapé* (snuff). Aguaruna vision seekers of Ecuador use tobacco enemas to produce a deathlike state. Shamans blow tobacco smoke and spittle against atmospheric enemies, such as thunder and lightning, that threaten human existence.

In many societies, shamans exercise power in the form of aggressive "were-jaguars," another condition accomplished through tobacco ingestion. Nicotine is used to provoke several physical changes, including a deep raspy voice, a furred tongue, and a fusty body odor. Nicotine also activates cholinergic preganglionic fibers of the sympathetic nervous system to stimulate the adrenal medulla to release epinephrine and norepinephrine, which mobilize the shaman's body for emergency reaction (USDHHS 1988; Schievelbein and Werle 1967). This generalized arousal is interpreted by the properly initiated shaman as characteristic of jaguar-men, and this experience confirms his shamanic status and role.

The use of tobacco for transcendental purposes in indigenous societies contrasts with its subsequent use in other American societies. In modern Latin American and Caribbean societies, tobacco is increasingly consumed for the social enjoyment of the stimulant rather than for the toxic and organoleptic effects of nicotine sought by the Indians. Acute intoxication, and its attendant immediate threat to health, has given way to long-term addiction and chronic health consequences.

The Emergence of the Cigarette, 1492–1900

Tobacco as a Cash Crop

Europeans did not follow native tobacco practices but developed a tobacco culture of their own based on trade. One of the earliest references to tobacco trade appears in Diego Columbus' will (dated 1534), which mentions a Lisbon tobacco merchant. The French ambassador to Portugal presented tobacco purchased in Lisbon to Queen Catherine de Medici of France in 1561, and a Spanish physician may have introduced tobacco to the court of King Philip II of Spain around 1560 (Fairholt [1859] 1968). Tobacco was first brought to England by Sir John Hawkins about 1565, and England soon had a large and fast-growing market (Anonymous 1602).

Within 30 years of Columbus's voyages, a tobacco trade had been established by the Spaniards between the Caribbean and India, and trade later developed with Japan, China, and the Malay peninsula (Robert 1967). Spanish tobacco, grown mostly in the Caribbean, dominated the market in the early sixteenth century. Sales of tobacco products became so lucrative that, in 1557, the Havana (Cuba) city council forbade black women from engaging in the tobacco trade, thus retaining trade for Europeans (Ortiz 1947). Tobacco growing thrived in parts of Latin America as well, especially in areas of Venezuela (Caracas, Cumaná, and Margarita).

Although the Spaniards attempted to monopolize the tobacco trade, many growers smuggled the leaf to Dutch and English ships. To curtail the contraband trade, King Philip II banned tobacco planting in most of the Spanish Colonies in Latin America from 1606–1616, a policy that stimulated England's search for its own source of tobacco (Robert 1967).

Sir Walter Raleigh first smoked tobacco in the Virginia colony in 1585, and John Rolfe introduced *N. tabacum* to the colony about 1611. Tobacco, a much-needed cash crop for the struggling Jamestown settlement, was exchanged for imported manufactured goods, and the colony soon became economically viable. Tobacco was taken to the Maryland settlements, where the soil produced a yellow tobacco known as Bright (Tilley 1948). According to Rolfe, Bright was "as strong, sweet, and pleasant as any under the sun,"

and with additional "triall and expense," it could compete with leaf grown in the West Indies (Morton 1945, p. 119). Maryland emerged as an important tobacco producer, and attempts to cultivate the crop in North Carolina also proved successful.

The first shipment of tobacco from Virginia reached London in 1613. Within three years, tobacco became the most significant crop and chief export of the British Colonies in North America (Tilley 1948). Tobacco was sold for its weight in silver, which encouraged production, exportation, and taxation (Wagner 1971). Thus, tobacco production became centered in the North American colonies, and the purchase of tobacco became an expensive indulgence.

Tobacco cultivation in Virginia allowed England to begin freeing itself from the Spanish tobacco trade. By 1614, high-quality Virginia tobacco was considered comparable to that grown in Trinidad (Bruce [1895] 1935). During 1615 to 1616, the Virginia Colony exported 2,500 pounds of tobacco, all but 200 pounds of which were sent to England, but the English imported 58,300 pounds from Spain (Brooks 1937–1952). This importation greatly concerned the English government because it created both a trade imbalance and an outflow of currency (Jacobstein 1907). In 1621, as the supply of Virginia tobacco increased, Parliament terminated importation of Spanish tobacco, which by then cost England £60,000 (Jacobstein 1907).

But not all Europeans were in favor of tobacco use. Some Europeans used tobacco for medicinal purposes, perhaps in imitation of South American Indians, but other Europeans believed that the use of tobacco was a heathen practice to be strongly discouraged. Many people claimed that smoking and chewing tobacco were harmful to health. The most famous attack on tobacco appeared in 1604, when King James I anonymously issued *A Counter-Blaste to Tobacco*, in which he disclaimed any medicinal value of tobacco and described smoking as a loathsome practice (James I [1604] 1954).

The King imposed a 400 percent tariff (McCusker 1988), but the tax had little impact on tobacco use, perhaps because demand was greatest among the upper classes. By the early seventeenth century, smoking and chewing tobacco were prevalent throughout most of Europe. In London in 1614, tobacco could be purchased at 7,000 establishments (Lehman Brothers 1955), and because of its presumed medicinal value, tobacco was commonly prescribed by physicians and made available at apothecaries.

In the New World, a sixpence fine was set for smoking in public in New Haven, Connecticut, in 1646, but in the following year, the Connecticut general court ruled that citizens could smoke or chew if they had a license from the court, unless they already had a doctor's prescription (Heimann 1960).

Concerns about tobacco faded, and attempts were made to grow tobacco in Europe. But climate and soil contributed to an unsatisfactory leaf. In the seventeenth century, attempts to produce tobacco were also made in Russia, Persia, India, Japan, and parts of Africa (Morton 1945); however, during this period, Europeans could obtain a sufficient supply of tobacco through importation from the New World only.

Tobacco Manufacturing and Trade

North America

In the Navigation Acts (1651 to 1673), the English parliament stipulated that all tobacco products from the colonies had to be shipped to England before being shipped elsewhere. The Acts were difficult to enforce, however, and resulted in a policy of benign neglect. But the passage of the Acts caused prices to rise sharply. Since tobacco production in the Virginia Colony was low, increased prices encouraged a proliferation of small farms in North America and, eventually, large tobacco plantations. The shortage of workers for these plantations spurred the slave trade, which increased the labor supply.

Annual tobacco shipments from the colonies increased significantly—from approximately 65,000 pounds in the early 1620s, to 1 million pounds by the late 1630s, to 20 million pounds in the late 1670s (Kulikoff 1986). By 1699, of the 30,757,000 pounds of tobacco exported to England from its North American colonies, all but 113,000 pounds were produced in Virginia and Maryland; 496,000 pounds were imported by England from other areas, including Europe, Turkey, Africa, and the Caribbean. During the next 75 years, imports from other areas declined, despite several sharp increases (Table 1). Reexportation of tobacco increased steadily during the first half of the eighteenth century and then peaked at 74,000 pounds in 1775 (U.S. Department of Commerce [USDOC] 1975).

Tobacco became the most important cash crop of the British Colonies. Labor for tobacco production was worth six times that used for wheat production (Jacobstein 1907), and in 1770, the total value of tobacco legally exported from the colonies (£906,638) was significantly greater than that of flour or rice (£504,553 and £340,693, respectively). Fifty percent of all British colonists obtained their living from tobacco production (Jacobstein 1907). In Maryland, wages

Table 1. Tobacco trade* in England, 1700–1775

Year	Imported from: North American colonies	Imported from: Other countries	Reexported†
1700	37,607	233	—
1705	15,629	32	—
1710	23,472	26	16,000
1715	17,801	8	15,000
1720	34,516	10	—
1725	21,034	12	16,000
1730	34,949	131	33,000
1735	40,068	1	—
1740	35,896	106	42,000
1745	41,063	10	43,000
1750	51,278	61	—
1755	48,867	217	45,000
1760	52,288	59	64,000
1765	48,317	3	68,000
1770	39,184	4	73,000
1775	55,458	510	74,000

Source: U.S. Department of Commerce (1975).
*In thousands of pounds.
†Reexportation exceeded importation in the later years because of tobacco grown in the British Isles.

were often paid in tobacco, which also functioned as a currency (USDOC 1975). In England, all companies involved in the tobacco industry also profited enormously, including those that provided banking and related services to planters.

During shipping, tobacco lost much of its moisture, and it had to be moistened before handling. To prepare tobacco leaves for smoking, the stems and ribs were removed and additives, such as sugar, glycerine, gum, and starch, caused the leaves to ferment. The leaves were either granulated for smoking or snuffing or pressed into plug for chewing. The different additives provided tobacco with distinct flavors. These flavors and the various shapes of plugs (including thick coil, pigtail, black twist, and Irish) offered the customer a wide selection in tobacco. Generally, the moister the plugs, the less expensive. Up to 120 pounds of plug could be manufactured from 100 pounds of tobacco, and carotte, an extremely moist variety, could yield 150 pounds of plug (Alford 1973).

But even before the American Revolution, the colonies had problems maintaining a steady level of tobacco production. Tobacco depleted the soil, which resulted in lower yields per acre over time. Tobacco growers faced a dilemma: maintaining their level of income required expanded planting, but a larger crop would also depress prices. Average price per pound for Maryland tobacco was already fluctuating sharply: one pence in 1713, 0.71 pence in 1714, 1.19 pence in 1720, and 0.65 pence in 1731. A general slump was followed by a steadily rising price per pound: 1.48 pence in 1752 and 2.23 pence in 1769. However, prices again declined in 1773 to 1.13 pence per pound (USDOC 1975). Some Virginia planters seriously contemplated abandoning tobacco in favor of wheat, and some did stop cultivating tobacco (Breen 1985).

Because of their increasing indebtedness to British merchants, most tobacco growers in the Bright Belt supported the American Revolution (Breen 1985). Thomas Jefferson wrote that these debts "had become hereditary from father to son, for many generations, so that the planters were a species of property, annexed to certain merchants in London" (Heimann 1960, p. 76). The American Revolution terminated the Navigation Acts but did not alter the adverse circumstances that many planters still faced.

Latin America and the Caribbean

In the 1580s, the Spaniards developed and expanded the plantation system in the Caribbean but emphasized sugar production (Brooks 1952). Foreigners began to enter the sugar industry, which required extensive capital, but tobacco production was dominated by local businesses. By 1606, 95 farms in Cuba specialized in tobacco (Andrews 1978). Little is known, however, about the industry in Cuba during this period, perhaps because Cuban farms grew the expensive and delicate tobaccos used in cigars and were quite small compared with the Virginia plantations (Ortiz 1947). The competitive advantage for the Cuban growers may have been that the leaf used for Cuban cigars produced a richer flavor with less nicotine than did the Bright leaf grown in the Chesapeake Bay area.

In the Chesapeake Bay area, the choice was between cotton and tobacco, and tobacco became more important. In Cuba, the choice was between sugar and tobacco, and tobacco became the less important crop (Ortiz 1947). Nevertheless, by 1711, a processing center was established in Havana to prepare tobacco leaf for shipment. In 1734, the center processed 3 million pounds of tobacco, one-third of which was of the best quality and was used to make snuff (Bray and Harding 1974).

In 1717, a tobacco monopoly was granted to Martin Arostegui by royal edict. Tobacco manufacturing was forbidden in Cuba, and raw leaf had to be sent to Spain (Stubbes 1985). As a result, tobacco farmers revolted in 1717, 1718, and 1723. The monopoly lasted for a century, however, and despite its adverse

effect on business, the tobacco trade continued to prosper (Ortiz 1947). From 1789 to 1794, Cuba produced about 6.25 million pounds of tobacco per year. A decline followed, due to imperial interference, the increasing cost of land, and the preference given to sugar and coffee production. By 1804, Cuba was obligated to import 1 million pounds of tobacco from the United States to meet the requirements of the Havana retail trade. Not until the Spanish government relented did the industry revive enough for Cuba to dominate the market for tobacco leaf and fine cigars in the 1830s (Turnbull [1840] 1973; Humboldt [1856] 1969).

Tobacco cultivation also flourished in Brazil, despite condemnation by the Roman Catholic Church and early Portuguese demands to use the land to grow food. However, these obstacles were overcome because the sale of tobacco could provide ready funds for purchasing slaves to work in the sugar cane fields. Tobacco sales became a state monopoly in Brazil in 1624, but sales were so profitable that the government yielded to private interests and abolished the monopoly in 1642. In 1659, the government reestablished the monopoly, which by 1716 earned 1.4 million crusados a year. Tobacco exports from Bahia averaged 375,000 pounds per year, and annual sales of Brazilian tobacco in London in the early eighteenth century were estimated at 1.9 million crusados (Randall 1977).

The Expansion of Tobacco Manufacturing

During the American Revolution, tobacco exported from the British Colonies declined sharply—to approximately 15 million pounds per year. Subsequent wars also contributed to the loss of foreign markets. Sales declined significantly during the Napoleonic Wars and the War of 1812 due to English blockade of American ports. In addition, revenues to cover the cost of these wars were raised by increasing excise taxes. In 1794, a tax was levied on manufactured tobacco to help cover the cost of the national government, but the tax was discontinued two years later. It was reintroduced to help defray the costs of the War of 1812 and remained in effect until 1816. England increased the tax on tobacco imports in 1815 from 28 cents to 75 cents per pound, which resulted in decreased consumption—from 22 million to 15 million pounds (Jacobstein 1907).

During the American Revolution, Europeans accelerated importation of tobacco from Latin America and the Caribbean and attempted to increase tobacco production elsewhere. Cuba, Colombia, Austria, Germany, and Italy were among the more active participants, but Sumatra also became a significant source of tobacco for Europe. By 1841, European production was estimated at 137 million pounds, compared with 219 million pounds in the United States. Europeans continued to purchase American tobacco, and in 1860, half of the total U.S. production of approximately 400 million pounds was shipped to Europe (Jacobstein 1907).

But taxation and the loss of some foreign markets contributed to a lower price for tobacco, which made cotton production more attractive to U.S. farmers. The United States was the world's leading cotton producer, with no competition from Europe. Yet, several factors contributed to the perpetuation and evolution of tobacco cultivation, curing, and trade. By law, before the American Revolution, only England could manufacture plug, snuff, cigars, and pipe tobacco. After gaining independence, Americans were free to manufacture these more profitable tobacco products, especially pipe and chewing tobaccos, which in addition to capturing the domestic market, became increasingly popular in Europe.

In North Carolina, tobacco became even more attractive because of an accident that changed the product. In 1839, a slave fell asleep while curing Bright tobacco. He awoke in time to see the embers dying and threw more charcoal on the fire to revive it, not realizing that the sudden heat would alter the process. What emerged was a brilliant yellow tobacco with a sweet, pleasant taste. This new curing method produced a slightly acidic tobacco unlike the more alkaline old Bright. The new tobacco was quickly adapted for use as a wrapper for many kinds of plug, which increased the popularity of this form of tobacco. The Bureau of the Census called this alteration "one of the most abnormal developments in agriculture that the world has ever known" (Sobel 1978, p. 16).

Cigar leaf was grown throughout the Caribbean, the first significant center for export of cigars to America and Europe. Cigars were first introduced in the United States in the late eighteenth century, and in 1804, more than 4 million Cuban cigars were imported (Brooks 1952). Cigars were first smoked in the southern colonies, and the practice soon moved north.

During the American Revolution, cigar manufacturing facilities were established in Philadelphia, Trenton, and New York, which became the centers for American cigar manufacturing. In 1800, cigar factories were also built in New Orleans; these factories produced cigars that resembled Cuban products. In 1810, a Suffield, Connecticut, cigar manufacturer employed a Cuban cigar roller to teach his craft to the American workers, and soon small cigar factories became widespread throughout the Northeast